

What is claimed is:

1. A method for testing a magnetic disc to be used in a disc drive, comprising the steps of storing a sequence of data points representing the slopes of a plurality of tracks along  $n$  radial lines,

operating on the stored sets of points to determine a measured slope for each track of the set of tracks in a disc region where roll-off is to be determined,

taking a radial moving average along a plurality of  $n$  radial lines on the disc, taking a radial derivative along the plurality of radial lines on the surface of the disc, building a curvature profile from the derivatives along the radial line and comparing said curvature profile to a pre-established limit to determine the suitability of the disc for use in a disc drive.

2. A method as claimed in claim 1 wherein the step of comparing the profile to a limit comprises the step of comparing the profile to a pre-established profile for an acceptable disc.

3. A method as claimed in claim 1 wherein the method of testing is performed on the substrate of a magnetic disc.

4. A method as claimed in claim 1 wherein the method is performed on an aluminum substrate prior to deposition of any of the recording layers.

5. A method as claimed in claim 3 wherein the step of determining the slope of each track comprises taking the average of the measured slope at the same circumferential track for each track, using a plurality of points for the track around the circumference of the disc.

6. A method as claimed in claim 5 wherein the step of taking a track average for an entire revolution of a track is used to obtain a representative slope of each track, and

wherein the track is assumed to represent a constant distance from the center of the disc.

7. A method as claimed in claim 1 wherein the step of developing a moving average comprises developing an average over a plurality of discs over a plurality of tracks,  $m$ , sufficient in number to eliminate spikes from appearing in the differentiation step which is to follow.

8. A method as claimed in claim 8 wherein the radial length of the moving average is smaller than the width of a head which is to be flown over the disc in which the disc is to be used.

9. A method as claimed in claim 8 including the step of providing a plurality of desirable curvature profiles, and assigning each disc to a group around a desired curvature profile.

10. A method as claimed in claim 9 wherein the step of providing a plurality of curvature profiles establishes each profile according to the desired characteristics of the head and slider to be used in the disc drive.

11. A method for testing a magnetic disc to be used in a disc drive comprising the steps of providing a profilometer,

utilizing the profilometer to provide a number of points representing the slope of the disc along a number of tracks near the outer edge of the disc and along a number of radii of the discs;

determining an average slope for each track of the disc around the circumference of the track;

developing along each of a plurality of radii of the disc a series of radial moving averages over the tracks of the discs, each radial moving average comprising a length of the radius sufficient to encompass a plurality of tracks, wherein the radial length of

each number of tracks is chosen to eliminate spikes from appearing in a differentiation step, and

differentiating the radial data to establish a radial profile of the disc and comparing each radial profile to one or more pre-established profiles to establish the utility of the disc in a disc drive having certain operating characteristics.

12. A method as claimed in claim 11 wherein the steps of the method are performed on a disc substrate.

13. A method as claimed in claim 12 wherein the radial length of each moving average has less than the width of a slider to be used in a disc drive having the characteristics represented by a curvature profile to which the curvature profile of the tested disc is matched.

14. A method as claimed in claim 11 wherein the data recorded for each track on the disc comprises the slope angle of each track on the disc moving circumferentially around the disc.

15. A method as claimed in claim 14 including the step of comparing the curvature profile of each disc substrate tested to one or more curvature profiles, each said profile representing operating characteristics for a particular disc drive with a particular slider.

16. Apparatus for testing a plurality of magnetic disc substrates each to be used in a disc drive whose characteristics are represented by a curvature profile comprising a profilometer,

a method for testing a magnetic disc to be used in a disc drive comprising the means for providing a profilometer;

utilizing the profilometer to provide a large number of points representing the slope of the disc along a number of tracks near the outer edge of the disc and along a number of radii of the discs;